HSDC
Hearing, Speech & Deaf Center

Bilingualism and the Brain:
Key Findings in the Science of Early Learning

Lindsay Klarman, MNPL, NIC-Advanced
Executive Director
lklarman@hsdc.org
Anna Dodd, **MEd**
Parent Infant Program Director
adodd@hsdc.org

Development is based on experiences

What does it take to learn a language?

What happens when a child learns more than one language?

What Will We Cover Today?

I. Define Bilingualism for D/HH
II. What is the research telling us?
III. How do we apply this info in the home and school environment?

Biology + Experience

How did he get from here…

…to here?

Biology + Experience

+

=

≠

Biological factors provide the 'raw ingredients'

Experience is the 'recipe'

Development is determined by Biology + Experience

Language Learning Before Birth

- Children are exposed to language in the womb
- Hours after birth, infants differentiate between native and non-native language sounds

Moon, Lagercrantz & Kuhl, 2013

Language Input is Important

- Parentese (aka, Motherese)
- Infant or Child Directed
  - Sign (CDSi)
  - Speech (CDSp)

ASL Language Exposure

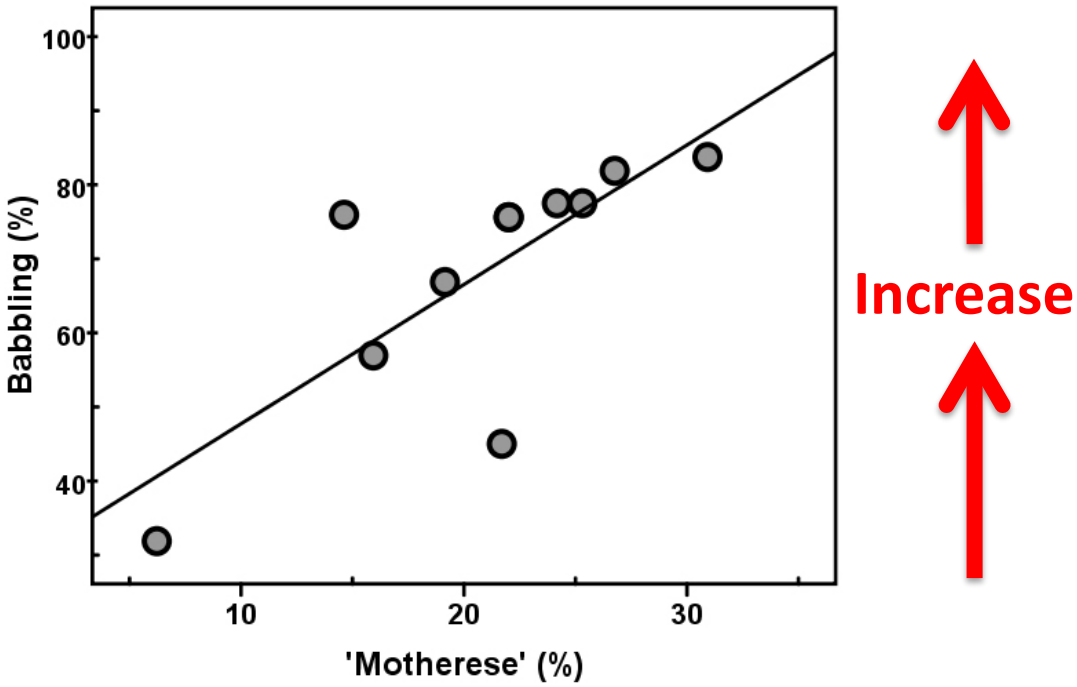
- When interacting with infants
  - signs are at a relatively slower tempo
  - more likely to repeat the same sign
  - the movements used to make the signs are exaggerated

- This "child-directed sign" is parallel to child-directed speech in the way it manipulates or varies the prosodic and linguistic patterns of the signal.

Erting, Prezioso, and O'Grady Hynes 1994; Holzrichter and Meier 2000; Clark 2003

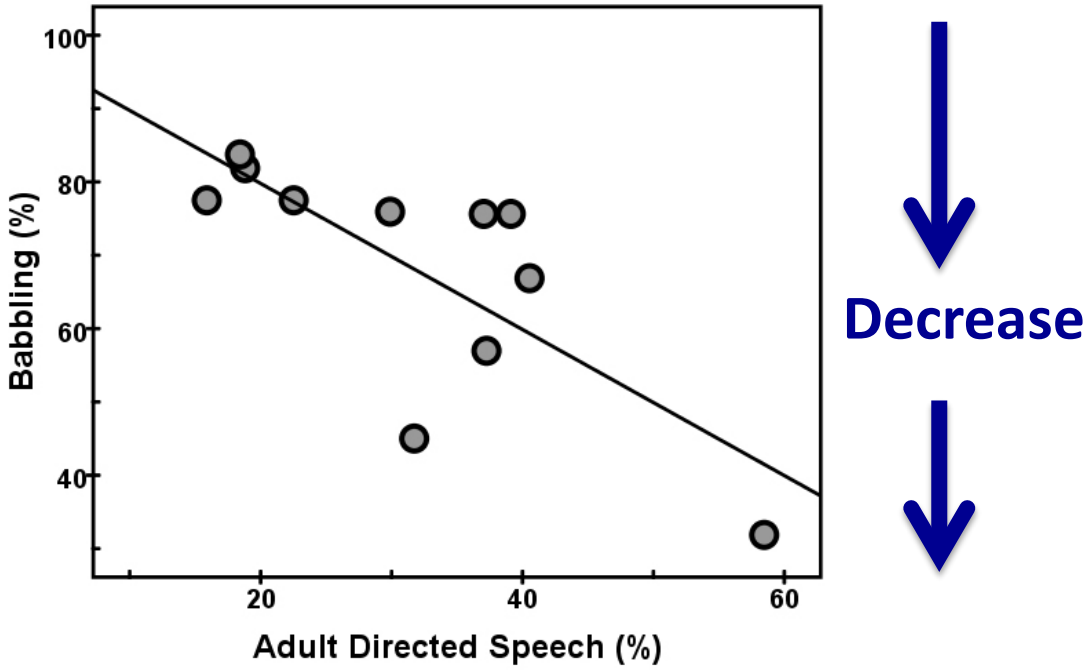
BABBLING: Around 5-7 months of age babies start to experiment with their language

- More “Parentese” → More Babble



BABBLING: Around 5-7 months of age babies start to experiment with their language

- Less “Parentese” → Less Babble



More "Parentese" → More Babble

Less "Parentese" → Less Babble

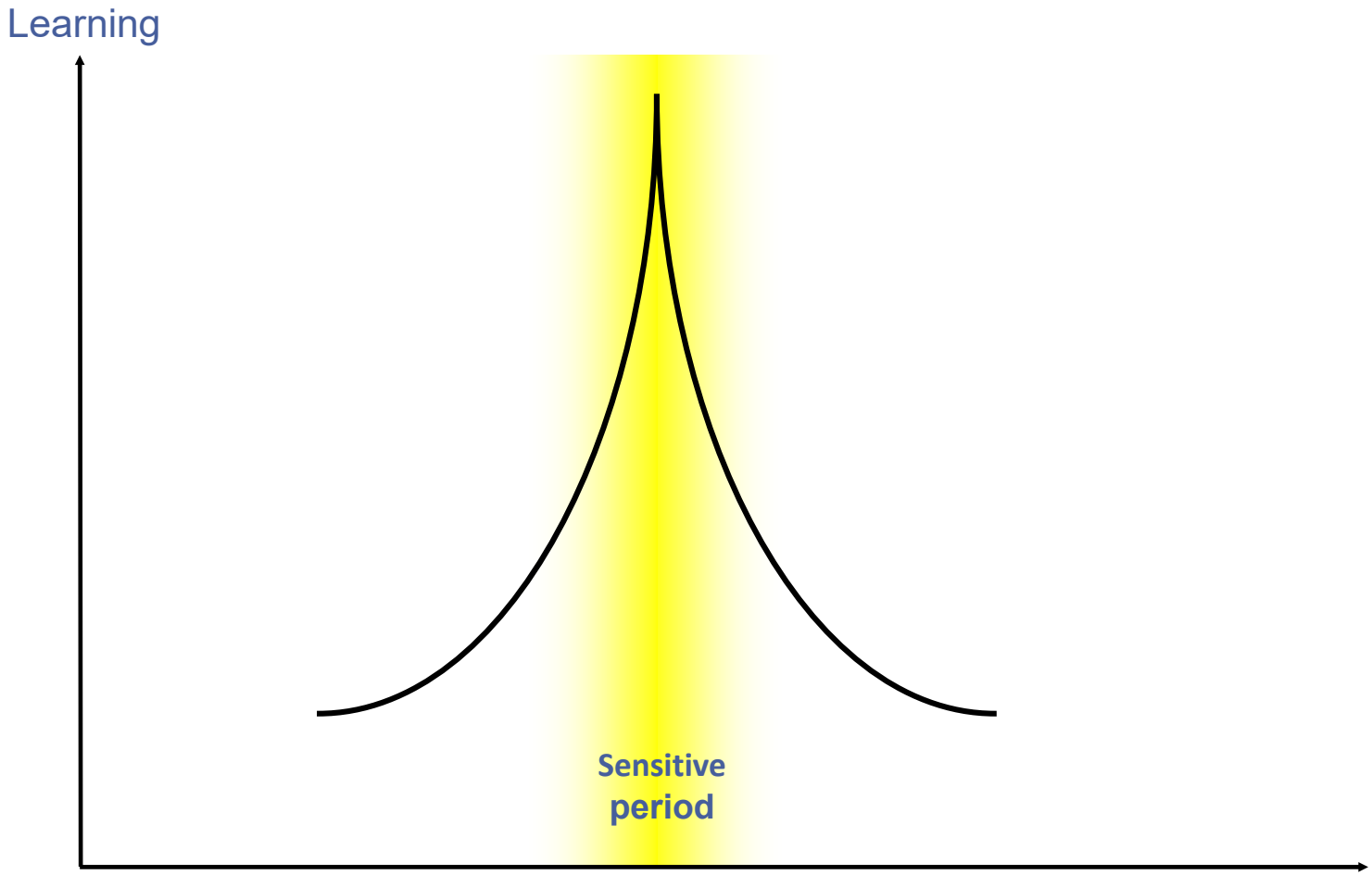
- **Language development in the visual-gestural modality occurs on approximately the same timetable as that for spoken languages.** (Newport & Meier, 1985; Meier & Newport, 1990; Petitto & Marentette, 1991; Mayberry 2011)

- **Visual and spoken languages are processed in the same part of the brain** (Xu, Gannon, Emmorey, Smith, & Braun, 2009)

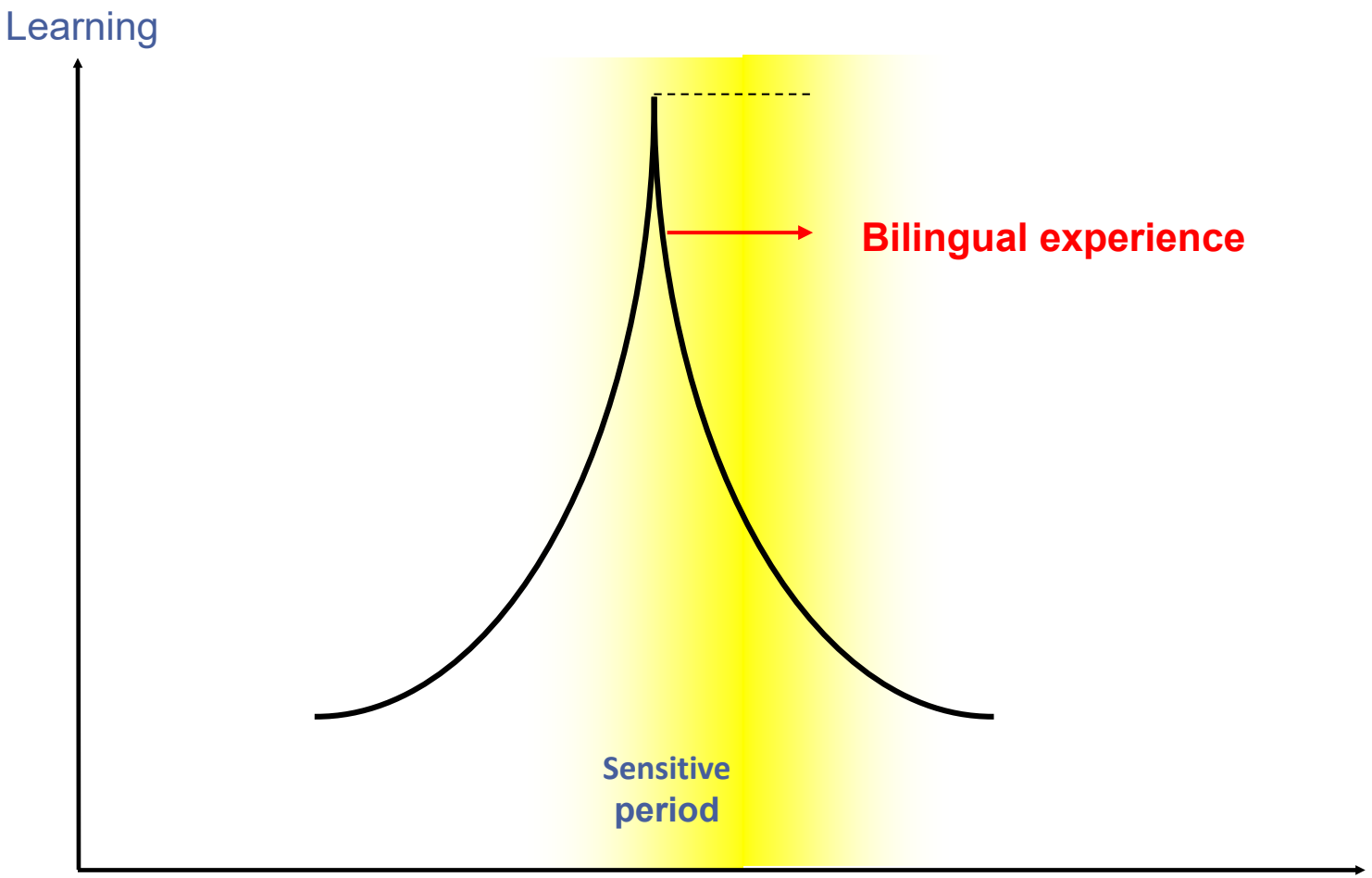
Example of Input in the Rosen Family Preschool

*Use of **ASL** with multi-level learners and language proficiency*

More Input =



More Input = Longer Sensitive Period*



Rivera-Gaxiola, Silva-Pereyra, & Kuhl, 2005; 2008

Good News: Substantial evidence exists to dispel some myths

There is evidence-based advice available.

- There is no evidence that bilingualism *causes* delay in any aspect of development.
- Mixing or switching languages in one sentence is a sign of mastery (not confusion).
- Bilingualism does not result in 'smarter' people, but there are certain cognitive advantages.

Children develop richer vocabularies when caregivers…

- Talk/Sign A LOT
- Share more information
- Ask more open-ended questions
- Issue fewer commands
- Offer more choices
- Are more responsive
- Engage children in playful conversation
- Use more rare or unusual words

THANK YOU!!!

- HSDC.org

- The Hearing, Speech & Deaf Center (Bellingham, Seattle, Tacoma in Washington)

QUESTIONS?